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APPLICATION NO. 06	FILING DATE 12/18/98	FIRST NAMED INVENTOR RAMA HEMBRON	ATTORNEY DOCKET NO. 98-P-7501-US
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EXAMINER
OLSEN, A

ART. UNIT 1746	PAPER NUMBER
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DATE MAILED: 06/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.
09/204,706

Applicant(s)
Ramachandran

Examiner
Allan Olsen

Art Unit
1746



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 20, 2001
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-17 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other: _____

DETAILED ACTION

Specification

1. The abstract is objected to because the abstract should be limited to a single paragraph.
Correction is required. See MPEP § 608.01(b).

Claim Objections

2. The objection to claim 13 is withdrawn
3. Claim 17 is objected to because “integration” should be --integrated--.
4. In the amendment filed 4/20/2001, claim 17 was inadvertently identified as “(a)” rather than by the number 17. Misnumbered claim 17 has been renumbered .
Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claims 13-15 are now drafted using means-plus-function language. However, it is not clear what function is to be associated with the separate chamber means. Therefore, the examiner

does not consider the means plus function language of these claims to invoke 112 sixth paragraph. Claim 13 recites "... separate chamber means for forming a water-only plasma process to strip the photoresist layer of a semiconductor composite structure previously subjected to a RIE process;". Independent claims 14 and 15 recite the functional limitation as "said separate chamber means for a water only plasma process ...". Is the separate chamber means of claim 13 for forming a water-only plasma, or is it for removing photoresist from an substrate which had previously undergone an RIE treatment, or must the separate chamber means function in both of these capacities? Also, the word "process" in the functional limitation of claim 13 gives rise to additional uncertainties. It is not clear how a chamber can be "for forming a ... process".

Furthermore, the "separate chamber means for" limitation of claim 13 is followed by "and separate chamber means for supplying a mixture....". Does this second reference to a "separate chamber means" pertain to an additional separate chamber or does it require the same separate chamber to perform this additional function?

Rejection of Apparatus Claims Based Upon Prior Art

The following rejections of the apparatus claims 13-17 are based upon the guidelines established by the following citations from MPEP 2114 and 2115. Limitations directed to method steps were given little patentable weight. The method limitations were considered only to the extent that they provided an indication as to what the claimed apparatus must be capable of performing.

MPEP 2114 [R-1] Apparatus and Article Claims - Functional Language

For a discussion of case law which provides guidance in interpreting the functional portion of means-plus-function limitations see MPEP § 2181 - § 2186.

APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." (emphasis in original) Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

MANNER OF OPERATING THE DEVICE DOES NOT DIFFERENTIATE APPARATUS CLAIM FROM THE PRIOR ART

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was "for mixing flowing developer material" and the body of the claim recited "means for mixing ..., said mixing means being stationary and completely submerged in the developer material". The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

**2115 Material or Article Worked Upon by Apparatus
MATERIAL OR ARTICLE WORKED UPON DOES NOT LIMIT
APPARATUS CLAIMS**

"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

In In re Young, a claim to a machine for making concrete beams included a limitation to the concrete reinforced members made by the machine as well as the structural elements of the machine itself. The court held that the inclusion of the article formed within the body of the claim did not, without more, make the claim patentable.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent 5,545,289 issued to Chen et al. (hereinafter, Chen).

Chen teaches an integrated RIE metal etching apparatus (column 12, lines 1-2, 30-36). Chen does not use the word “integrated”, nevertheless, the apparatus of Chen contains an etching chamber (not pictured) which is connected to a separate passivating and stripping chamber (column 12, lines 3-8). The apparatus of Chen contains the necessary components to supply a mixture of an etching gas and an acid neutralizing gas into a vacuum chamber (column 13, lines 39-41). Chen teaches that the chamber, which is separate from the etching chamber, is capable of forming a water-only plasma (column 13, Table 1, H₂O Passivating Step data of examples 2-11). The apparatus of Chen includes a plasma generation zone which is remote from the substrate supporting structure (see figure 2, column 5, line 66-column 6, line 8). In the above noted citations, each and every apparatus limitation found in claim 13 is taught by Chen.

With regard to claims 14 and 15, Chen teaches that the temperature of a substrate contained within the separate chamber may be controlled within the range of 150°C to 400°C.

The temperature may be held constant or the temperature may be varied. These noted teachings of Chen meet the apparatus limitations of claims 14 and 15.

Each apparatus limitation of claims 16 and 17 are also taught by the above noted citations

10. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,816,098 issued to Davis et al. (hereinafter, Davis).

Davis teaches a multi-chamber apparatus. The vacuum chambers of Davis include: gas supply lines; remote plasma generation means; substrate heating means; and substrate temperature controlling means. The apparatus of Davis contains all the components to meet the apparatus limitations of claims 13-17. Furthermore, these components are arranged such that the apparatus of Davis is capable of performing the method limitations set forth in claims 13-17. See column 60, lines 34-54; column 44, lines 33-47.

Response to Arguments

11. Applicant's arguments filed April 20, 2001 have been fully considered but they are not persuasive.

Applicant argues that Chen does not teach an metal etching apparatus with a separate chamber means for forming a water only plasma or a separate chamber means for supplying a mixture of gases into a vacuum chamber to treat a substrate. The examiner points to column 1 in which the background of the invention discusses metal etching process, also column 4, lines 46-51 which

describes the etching of metallic features on a substrate. Also note the reference to a "METAL ETCHER" at column 12, line 2 after which, many examples of metal etching are given.

To support applicant's position that Chen does not teach a separate chamber means, applicant points to figure 2 of Chen. The examiner points out that in column 5, line 41+, Chen describes the apparatus depicted in figure 2 as comprising an etching chamber ("not shown") and a load/lock transfer chamber ("also not shown").

Applicant argues that the multi-chamber apparatus of Davis is exclusively directed to transferring workpieces. Applicant contends that there is no reference to an integrated RIE metal etch tool and goes on to state, "[I]ndeed, no RIE processes are present at all in Davis et al."

The examiner finds an abundance of RIE processes described in Davis, for example, see column 17, lines 24+, and the metal etch at column 42, lines 4-7.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is (703) 306-9075. The examiner can normally be reached on Monday through Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached on (703) 308-4333. The fax phone number for this Group is (703) 305-7719.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Allan Olsen, Ph.D.

June 2, 2001



RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
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